KRNAK, Rudolf

"Course of gas welding in questions and answers" by Boleslaw Szupp, Leon Mistur. Reviewed by Rudolf Krnak. Stroj vyr 11 no.8: 422 Ag '63.

KRNAK, R.

About annealing. Strojirenstvi 13 no.9:681-685 S '63.

1. Ceskomoravska-Kolben-Danek Praha.

KRNAK, R.

"Welding and flame cutting" by D.L.Glizmanenko, G.B.Jevsejev [Yevseyev, G.B.]. Reviewed by R.Krnak. Strojirenstvi 13 no.6:477 Je '63.

KRNAK, Rudolf

"Control of the quality of welds and welded structures" by I.N. Bondin. Reviewed by Rudolf Krnak. Stroj vyr 11 no.10:533 O '63.

KRNAK, Rudolf

"Technology of electric fusion welding" edited by B.E.Paton. Reviewed by Rudolf Krnak. Stroj vyr 11 no.9:475 S '63.

KRNAK, Rudolf

"Handbook for arc welding" by H.Karliczek. Reviewed by Rudolf Krnak. Stroj vyr 11 no.11:589 N'63.

KRNAK, Rudolf; VRANA, Boleslav, nositel Radu prace

On the quality of welding. Stroj vyr 12 no.1:34-35 Ja'64.

KRNAK, Rudolf

Technological weldment processes. Zvarnie 13 no.2:39-44 F '64.

1. Ceskomoravska-Danek Praha.

KRNAK, Rudolf

Importance of mechanization devices in welding. Zvaranie 14 no.1: 16-19 Ja '65.

1. Ceskomoravska-Kolben-Danek National Enterprise, Prague.

KRNAN, Frantisek

Fyzika pre 1. roc. priem. skol. (Physics for the 1st grade of industrial schools. a textbook. 3d ed. illus., notes) Authors: Frantisek Krnan and Ivan Nater. Bratislava, SPN, 1957. 254 p.

Bibliograficky katalog, CSR, Slovenske Khihy, Vol. VIII. 1957. No. 9. p. 275.

L 38907-66 IJP(c)

ACC NR: AP6029572 SOURCE CODE: CZ/0045/65/000/002/0097/0115

AUTHOR: Krnyan, Frantishek--Krnan, F. (Bratislava) 31 B

ORG: Department of Mathematics and Descriptive Geometry, Engineering Faculty, Slovak Institute of Technology, Bratislava (Katedra matematiky a deskriptivnej geometrie, Strojnicka fakulta, Slovenska vysoka skola technicka)

TITLE: Study of the structure of the semigroup of square matrices of the order n over a given field 16

SOURCE: Matematicko-fyzikalny casopis, no. 2, 1965, 97-115

TOPIC TAGS: group theory, mathematic matrix, field theory

ABSTRACT: The structure of the semigroup S(n) of the square matrices of the order n over a given field is approached by the method of decomposition of singular matrices of the rank $r \neq 0$ into the produce $A = LM$ of two matrices of the types n/r and r/n of the maximal rank r. Orig. art. has: 13 formulas. [Based on author's Eng. abst.] [JPRS]

SUB CODE: 12 / SUBM DATE: 09Jul63 / ORIG REF: 001 / SOV REF: 005
OTH REF: 001

Card 1/1 UDC

0917 2666

KRNETA, Branko

Opening of the federal centers for education of instructors in construction and mining industries and in commerce. Produktivnost 3 no.11: 747-748 N '61.

KRNIC, Marko, inz. (Osijek)

Rentability of the processing of glycerin lye depending on its concentration. Kem ind 12 no.4:231-233 Ap '63.

KRNIC, Marko, inz.

Optimum working conditions in kernel soap washing. Kem in
12 no.10:755-758 0'63.

1. "Saponia", Osijek, Istrazivacki institut.

KRNIC'H, Luka [Krnic, Luka] (Zagreb)

A note on computing algebra of logic bases constructed with the aid of functions of one or two variables. Glas mat fiz Hrv 18 no.1/2:13-16 '63.

S/081/62/000/021/019/069
B156/B101

AUTHORS: Kukolja, S., Polak, Lj., Krnjević, H., Videk, M.

TITLE: Substances acting on the central nervous system. IV. Derivatives of 2-ethyl-2-phenyl butyramide

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 21, 1962, 157, abstract 21Zh125 (Croat. chem. acta, v. 33, no. 3, 1961, 121 - 126 [Engl.; summary in Serb.-Croat.])

TEXT: Research to find substances acting on the central nervous system has involved the synthesis of a number of derivatives of $C_6H_5C(C_2H_5)_2COOH$ (acid I): $C_6H_5C(C_2H_5)_2CONHR$ (II), $C_6H_5C(C_2H_5)_2CONHCOR$ (III) and $4\text{-}RC_6H_4C(C_2H_5)COR'$ (IV). To 0.1 mole I in 200 ml absolute C_6H_6 40 ml $SOCl_2$ are added; the whole is boiled for 2 hrs, and the volatiles distilled off; without any further purification, the acid chloride is dissolved in 50 ml C_6H_6 or $HCON(CH_3)_2$, 0.05 mole of anhydrous Na_2CO_3 and 0.1 mole of the appropriate amide added, and the mixture heated for 2 hrs at ~100°C and left for

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~12 hrs at ~20°C; the residue is washed in 10 ml C_6H_6, and II separated from the combined filtrates (R, the gross formula, the yield in %, and the melting point in °C (from alcohol) are given): C_2H_5, $C_{14}H_{21}NO$, 90, 103 - 104; $CH_2CH_2N(C_2H_5)_2$, $C_{18}H_{31}ClN_2O$ (hydrochloride), 60, 164 - 165 (from alcohol-ether); CH_2CH_2OH, $C_{14}H_{21}NO_2$, 81, 66 - 67.5 (from benzene + petroleum ether); $-CH_2CH_2-$, $C_{26}H_{36}N_2O_2$, 80, 107 - 109 (from benzene + petroleum ether); C_6H_5, $C_{18}H_{21}NO$, 89, 85 - 86.5; $CH_2C_6H_5$, $C_{19}H_{25}NO$, 85, 120 - 122; 5-propyl mercapto thiadiazole-1,3,4-yl-2, $C_{17}H_{23}N_3OS_2$, 78, 89 - 91; 5-isopropyl mercapto thiadiazolyl-1,3,4-yl-2, $C_{17}H_{23}N_3OS_2$, 61, 91 - 93; 2-phenyl-pyrazolyl-3, $C_{21}H_{23}N_3O$, 70, 126 - 128. 0.02 mole of $C_6H_5C(C_2H_5)_2CONH_2$ (V) and 0.02 mole $NaNH_2$ are boiled in 15 ml of anhydrous C_6H_6 for 2 hrs; after cooling, 0.025 mole of RCOCl are added and the mixture is boiled for 2 hrs; after ~12 hrs, at ~20°C, 10 ml of water are added, and III is separated from the organic layer ((R, the gross formula,

the percentage yield, and the melting point in °C (from alcohol) are given]: CH_3, $C_{14}H_{19}NO_2$, 18, 89 - 92; C_2H_5, $C_{15}H_{21}NO_2$, 15, 100 - 102; C_6H_5, $C_{19}H_{21}NO_2$, 12, 123 - 125; $CHBrCH(CH_3)_2$, $C_{17}H_{24}BrNO_2$, 10, 114 - 116. During 20 min, 4 ml of fuming HNO_3 are added under cooling to 10 g I in 40 ml of concentrated H_2SO_4, and the mixture is held at 0 - 10°C for 30 min; it is poured onto ice, and 46 % of IV (R = NO_2, R' = OH) (IVa), $C_{12}H_{15}NO_4$, m.p. 144 - 146°C (from benzene) are separated by recrystallization. 2.4 g IVa and 0.5 g anhydrous Na_2CO_3 in 15 ml water are hydrogenated over 0.05 g of Pd/C at ≈20°C and 760 mm; the filtrate is neutralized with HCl, and 70 % of IV (R = NH_2, R' = OH) (IVb), $C_{12}H_{17}NO_2$, m.p. 166 - 167°C (from alcohol), are separated. 1 g IVb in 10 ml $(CH_3CO)_2O$ is boiled for 2 hrs, the excess of anhydride evaporated, and the residue dissolved in 10 % Na_2CO_3; acidifying the alkaline solution provides 41.5% of IV (R = CH_3CONH, R' = OH) (IVc), $C_{14}H_{19}NO_3$, m.p. 197 - 198°C (from aqueous

alcohol). Another substance produced from IVa is IV (R = $N(CH_3)_2$, R' = OH) (IVd), $CH_{14}N_{21}NO_2$, yield 83 %, m.p. 145 - 146°C (from dilute alcohol). 0.5 g IVd are methylated with CH_2N_2 produced from 1 g nitroso-methyl carbamide, and the methyl ester of IVd [R = $N(CH_3)_2$, R' = OCH_3], $C_{15}H_{23}NO_2$, is obtained; yield 90 %, m.p. 79 - 80°C. The methyl ester (R = CH_3CONH, R' = OCH_3), $C_{15}H_{21}NO_3$, (yield 90 %, m.p. 143 - 144°C) is synthesized in an analogous manner from 0.6 g of IVc. 10 g IV (R = H, R' = NH_2) (IVe) are cooled with ice and added to 50 ml of concentrated H_2SO_4, and during 20 min at 0 - 10°C 4 ml of fuming HNO_3 are added drop by drop; the mixture is held in ice for 30 min, and poured out onto ice; the resultant product is 54 % of IV (R = NO_2, R' = NH_2) (IVf), $C_{12}H_{16}N_2O_3$, m.p. 127 - 128°C. To 1 g IVa in 10 ml C_6H_6 2 ml of $SOCl_2$ are added; the mixture is boiled for 2 hrs, the volatile substances evaporated, the residue dissolved in 10 ml C_6H_6 and saturated with NH_3 gas; the product is 40 % of IVf. By nitrating

10 g $C_6H_5C(C_2H_5)_2CN$ (VII) in a manner analogous with the production of IVa, 47.5 % of 4-$NO_2C_6H_4C(C_2H_5)_2CN$ (VIII), $C_{12}H_{14}N_2O_2$, m.p. 81 - 83°C (from benzene) are synthesized. 3 g VIII in 10 ml 96 % H_2SO_4 are heated for 8 hrs at 70°C and poured onto ice; 67 % IVf are extracted with C_6H_6. IV is correspondingly produced in a manner analogous with that described above for the synthesis of IVd and IVe (R, R', the gross formula, the initial substance, the percentage yield, and the melting point in °C, are given): $N(CH_3)_2$, NH_2, $C_{14}H_{22}N_2O$, IVf, 79, 119 - 120; NH_2, NH_2, $C_{12}H_{18}N_2O$, IVf, 53, 142 - 143. 85 g VII, 250 ml concentrated H_2SO_4, and 25 ml water are heated at ~100°C for four hrs, and then after cooling poured onto ice, C_6H_6 being used for extracting 81 % of nonpurified IVe, m.p. 49 - 51°C. 77 g of nonpurified IVe are treated by the method described earlier (see N. Sperber et al, J. Amer. Chem. Soc., v. 70, 1948, 3091), with C_4H_9ONO in CH_3COOH, and 90 % I, m.p. of 90 - 91°C, is produced. For communication III, see RZhKhim, 1962, 8Zh134. [Abstracter's note: Complete translation.]

Card 5/5

CZECHOSLOVAKIA
12 Aug 66

KRNO, D.M.

State Planning and Statistica Office. Since June 1949 Ambassador to Austria; returned to Czechoslovakia on his own request. Afterwards working and the Komensky University, at first as head of the Department of International Law and Government (at the Faculty of Law) and since 1954 as head of the Department of Journalism at the Faculty of Philosophy of Komensky University.
Author of numerous books. Celebrated his 65th borthday on 12 August (Photo of Krno is given)

Praca, Bratislava, 12 Aug 66, p 4.
(two of two)

(1)

COUNTRY : Hungary

CATEGORY : Chemical Technology. Chemical Products and Their Applications-- ceramics. Glass. Bonding materials *

ABS. JOUR. : RZKhim., No. 16 1959, No. 57746

AUTHOR : Kroach, M.
INST. : Not given
TITLE : The Silicates Industry in Hungary

ORIG. PUB. : Epitoanyag, 10, No 12, 417-419 (1958)

ABSTRACT : No abstract.

CARD: 1/1

* Concrete.

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KROBA, F.

"Preventing the Breaking of the Cylinder Heads of Skoda 706 RO Motors." p. 86
"Possible Effects of the Incorrect Temperature of Cooling Water." p. 87 (Svet Motoru, Vol. 7, no. 139, Feb. 1953, Praha)

SO: Monthly List of East European Accessions, Vol. 3, No. 3 March 1954, Uncl.

ACC NR: AP6030800 (A,N) SOURCE CODE: UR/0346/66/000/009/0087/0089

AUTHOR: Kolomakin, G. A. (Doctor of veterinary sciences); Krobchenko, M. I. (Director); Bel'chenko, G. A. (Veterinary doctor)

ORG: Kazakh Republic Veterinary Laboratory (Kazakhskaya respublikanskaya veterinarnaya laboratoriya)

TITLE: Precipitation reaction in agar gel in rabies

SOURCE: Veterinariya, no. 9, 1966, 87-89

TOPIC TAGS: animal disease, rabies, disease diagnosis, diagnostic method, precipitation reaction , gel, chemical precipitation

ABSTRACT: For three years the authors have used a reaction of precipitation in agar gel for rabies diagnosis which was developed in the Department of Epizootology of the Alma-Ata Zootechnical and Veterinary Institute. Standard histological methods were also used in rabies detection. This reaction did not give positive results for 96 animals dying from various causes or for 83 animals dying from other infectious diseases. However, positive precipitation-reaction results for 257 agricultural and wild animals were supported by positive diagnosis of rabies by other methods. The authors were most interested in the

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UDC: 619:616.988.21-077.34

ACC NR: AP6030800

demonstrated high specificity of the method, particularly for cases in which other diagnostic methods, especially examination for Babes-Negri bodies, do not yield positive results. However, for a number of reasons (quality of gamma-globulin used in the reaction, precipitinogenic properties of the infective strain, and laboratory conditions), PR does not always yield positive results in confirmed rabies cases. The diagnostic accuracy of the PR is increased when separate suspensions are prepared from various parts of the brain, rather than one general suspension. No relationship was noticed between the degree of precipitinogenicity of the brains of rabid animals and the time of death of mice infected with their brain tissue. It is also suggested that better results may be obtained when ten, rather than six, infant mice are used for bioassay, as bioassay using six older mice, followed by PR of their brain tissue did not always confirm rabies diagnosis. PR using a good-quality gamma globulin showed results in as little as 24 hr. The method also shows potential for use with unfresh or frozen material. Negative PR does not, however, definitely indicate the absence of rabies virus. This method will be included in diagnostic studies of rabies. [WA-50; CBE No. 12]

SUB CODE: 06/ SUBM DATE: none/

Card 2/2

RYLSKI, Leszek; PAC-POMARNACKA, Elzbieta; STRUPCZEWSKA, Elzbieta; KROBJILOWSKA, Magdalena; ZANDER, Krystyna

Synthesis of some amino derivatives of 2-phenethylamine. Acta Pol. pharm. 22 no.3:197-201 '65.

1. Z Zakladu Technologii Chemicznej Srodkow Leczniczych Akademii Medycznej w Gdansku (Kierownik: doc. dr. L. Rylski).

HRUBES, Jiri (Praha); KROHL, Ladislav (Praha)

Motor oil filtration during operation. Ropa a uhlie 5 no.5: 149-153 My '63.

KRÖBL, P.

Thermal decomposition of complex compounds. I. Kékedy, P. Kröbl, Á. Szurkos, and B. Kékedy. *Studia univ. "Victor Babeș" el Bolyai 3*, No. 4, Ser. 1, No. 2, 99-110 (1958).—The thermal decompn. of hexammine-cobalt complexes was studied by the thermal-analysis method proposed by Erdey and Paulik (*CA* 50, 3952e). By measuring the decompn. temp. and the heat of formation of the complex compds., it was observed that the stability of the compds. with identical internal coordination spheres, decreases with the increasing vol. of the external-sphere anion. Also, the halide concn. in the decompn. products of compds. contg. halide ions in the external sphere decreases with increasing ionic radius of the compd.

J. Tadros

5

1. KRÖBL, P. (NB)

KRÖBL, P.

1

Thermal decomposition of complex compounds. II. The thermal decomposition of [illegible]nitrocobalt chloride in an ammoniacal atmosphere. Ladislau Kékedy, Árpád Szurkos, Paul Kröbl, and Elisabeta Kékedy. *Acad. rep. populare Romîne, Filiala Cluj, Studii cercetări chim.* 9, 79–89 (1958); cf. *Bul. ştiinţ. Univ. "V. Babeş" şi "Bolyai," Cluj, Ser. ştiinţe nat.* 2, 99(1958).—The thermal decompn. of luteocobaltic chloride in an ammoniacal atm. under conditions of thermogravimetric analysis takes place in the following manner: $[Co(NH_3)_6]Cl_3 \xrightarrow{240^\circ} CoCl_3.NH_3.NH_4Cl \xrightarrow{300^\circ} CoCl_3.NH_3 \xrightarrow{400^\circ} CoCl_3 \xrightarrow{460^\circ} Co$. Under certain conditions (isothermal heating to 215–220°), the purpureocobaltic chloride is obtained. The transition from luteocobaltic chloride to purpureocobaltic chloride takes place through an intermediate compd. $CoCl_3.\frac{1}{2}NH_3$. The transition of the luteocobaltic chloride in purpureocobaltic chloride was proved also by differential thermal analysis. This method also has proved the elimination of one mole of NH_4Cl from $CoCl_3.NH_3.NH_4Cl$. In this study, ammonia was used at atm. pressure and the quantities of substances were 50–150 mg. in a crucible of 10 mm. diam. III. The thermal decomposition of hexamminecobalt chloride in air. Ladislau Kékedy, Árpád Szurkos, Elisabeta Kékedy, and Paul Kröbl. *Ibid.* 91–100(1958).—The thermal decompn. of luteocobaltic chloride in air was studied. The first compd. formed is the praseocobaltic chloride. The differential thermal analysis curve shows that, before decompn., the praseocobaltic chloride undergoes an exothermal transformation without variation of wt., changing from green to violet with the same analytical compn. It seems that the *trans*-praseocobaltic chloride is transformed into *cis*-praseocobaltic chloride. From this study it may be said that all the changes observed take place according to the trans law of action. This may be the cause why in an ammoniacal atm. only the purpureocobaltic chloride is formed, and in air only the praseocobaltic chloride. C. Heitner-Wirguin

COUNTRY : RUMANIA C
CATEGORY : Inorganic Chemistry. Complex Compounds

ABS. JOUR. : RZKhim., No. 1 1960, No.693

AUTHOR : Kekedy, L.; Szurkos, A.; Kekedy, E.; Krobl, P.
INST. : Rumanian AS, Cluj Affiliate
TITLE : On Thermic Decomposition of Complex Compounds. III. Thermic Decomposition of Hexammino-Cobalt Chloride in Air
ORIG. PUB. : Studii si cercetari chim. Acad. RPR Fil. Cluj, 1958, 9, No 1-4, 91-100
ABSTRACT : The thermic decomposition of $[Co(NH_3)_6]Cl_3$ in air in the temperature interval of 0-700° was investigated. It was established that $[Co(NH_3)_6]Cl_3$ transforms upon decomposition, splitting off two molecules of NH_3, into trans-$[Co(NH_3)_4Cl_2]Cl$ which, prior to further decomposition, transforms into a violet salt of the same composition, apparently into cis-[Co-

CARD: 1/2

C-10

COUNTRY :
CATEGORY : C

ABS. JOUR. : RZKhim., No. 1 1960, No. 693

AUTHOR :
INST. :
TITLE :

ORIG. PUB. :

ABSTRACT : $(NH_3)_4Cl_2]Cl$. These processes are explained
cont'd from the viewpoint of the effect of trans-
influence if it is assumed that in the com-
pounds of Co (+3) the trans-influence of Cl
is greater than that of NH_3. Report II, see
RZhKhim., No 21, 1959, No 74490.-- Yu. Khari-
tonov

CARD: 2/2

FELSZEGHY, E.; STOICOVICI, E.; HAGY, L.; KROBL, P.; LITERAT, I.
ILIES, M.

Contributions to the study on the colloidal clays in Rumania. Pt. 6. Studia Univ B-B S. Chem 8 no. 2.95-105 '63.

KROHL, Paul; WAGNER, Iosif.

Chemical and physical study of coal in Rumania. Studia Univ B-B S Chem 8 no.1:473-480 '63

1. "Babes-Bolyai" University, Cluj.

MISINGER, I.; KROBOVA, I.; SKODA, V.; TRNKA, V.

Contribution to the treatment of climacteric and post-castration osteoporosis and osseous metastases of gynecological cancer. Cesk. gynek. 30 no.8:566-568 O '65.

1. II. gyn.-por. klin. fakulty vseobecneho lekarstvi Karlovy University v Praze (prednosta prof. dr. J. Lukas, DrSc.).
Submitted December 29, 1964.

KRIC, L.

The influence of a load on the motion of a servomechanism and its reduction.

P. 681. (SLABOPROUDY OBZOR.) (Praha, Czechoslovakia) Vol. 18, No. 10, Oct. 1957

SO: Monthly Index of East European Accession (EEAI) LC. Vol. 7, No. 5, 1958

KROC, Ladislav, inz., CSc.

Electromagnetic systems of electromechanical transducers.
Automatizace 6 no.6:133-136 Je '63.

1. Vojenska akademie Antonina Zapotockeho.

L 38758-66 EWT(d)/EWT(m)/EWP(k)/EWP(h)/EWP(v)/EWP(t)/EWP(l)/ETI IJP(c) JD/
ACC NR: AP6029568 HW/BC SOURCE CODE: CZ/0057/65/000/009/0381/0385

AUTHOR: Krocek, Frantisek

ORG: NHKG, Ostrava

TITLE: Use of a computer in rolling calculations

SOURCE: Hutnik, no. 9, 1965, 381-385

TOPIC TAGS: metal rolling, computer, computer program, industrial development

ABSTRACT: Practical examples of calculation of rolling pressures are discussed. The use of these calculations in the design of new plants is described. The method of using computer programs for optimizing profiles of rolled products is described. Orig. art. has: 2 figures and 3 tables. [JPRS]

SUB CODE: 13, 09, 05 / SUBM DATE: none / ORIG REF: 004

Card 1/1

POPOVA, L.A.; KROCHAGIN, V.B.

Determination of nystatin during the process of fermentation.
Antibiotiki 5 no.1:58-62 Ja-F '60. (MIRA 13:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov.
(MYCOSTATIN)

AUTHOR: Krochakevich, V. D., Engineer (Riga) 105-58-3-10/31

TITLE: Charging a Capacitor From an A.C. Source Through a Rectifier (Zaryad kondensatora ot istochnika peremennogo toka cherez vypryamitel')

PERIODICAL: Elektrichestvo, 1958, Nr 3, pp. 69-70 (USSR)

ABSTRACT: The pulsations of the rectified voltage have a great influence on the charging of capacitors with a great capacity, if the charging period essentially exceeds the period of the supply current. This, because a charging occurs only at such moments, where the applied pulsating voltage exceeds the voltage at the capacitor u_C. An increase of the number of phase in rectifying leads to an acceleration of charging. It is assumed, that the parameters of the circuit have the same influence on the course taken by the entire process as is the case at the application of a constant voltage. Differential equations are set up for the determination of the equivalent circuit parameters, which describe the processes occuring in the circuit. For this purpose, the usual assumptions of rectifier theory are made (Ref. 1) and it is furthermore assumed, that the switching-on

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Charging a Capacitor From an A.C Source Through a Rectifier 105-58-3-18/31

is performed within the circuit of the rectified current. The formulae (1) and (2) for the equivalent resistance R_e, or the equivalent inductivity L_e are deduced. From (1) it is seen, that requivalent is dependent not only upon the resistances, but also on the impedances of the a.c. circuit as well as on the frequency. This dependence is also proved experimentally. From the rules governing the aperiodic regime and from (1) and (2) follows, that an increase of the secondary voltage of the stepping-up transformer can lead to a slowing down of charging. There are 3 figures and 1 Soviet reference.

SUBMITTED: November 19, 1957

AVAILABLE: Library of Congress

Card 2/2

8 (3)

AUTHOR: Krochakevich, V. D., Candidate of Technical Sciences (Riga)

SOV/105-59-12-13/23

TITLE: Duration of the Transition Processes in Circuits With 3-Phase Bridge Rectifiers

PERIODICAL: Elektrichestvo, 1959, Nr 12, pp 61-63 (USSR)

ABSTRACT: To improve the protective connection and the automatic controls of a.c. circuits a d.c.-equipment is used. The latter is fed via semiconductor rectifiers (with different wirings). The single-phase rectifiers have the disadvantages described in the article, which do not occur in 3-phase bridge-rectifier wiring. In the latter case the relation of the amplitude of the variable voltage component to the average (mean) value is 5.7% instead of the 66% in the single-phase bridge-rectifier wiring. Due to this, the initial phase has no influence on the current increase rate. In automation networks impulse generators are also used. These are fed via rectifiers from capacity power storages. The operation cycle of these generators is mainly determined by the charging time of the condenser, which is considerably shorter in 3-phase bridge rectifier wiring than in single-phase wiring. The author shows that by selection of the

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Duration of the Transition Processes in Circuits With 3-Phase Bridge Rectifiers SOV/105-59-12-13/23

parameter of the rectifier equipment and by connecting condensers to the a.c. circuit (before the rectifiers), when needed, the duration of the transition processes in the circuits with 3-phase bridge rectifier can be varied within wide limits. Besides, the quick operation of the d.c.-fed apparatus is considerably increased. There are 4 figures and 3 Soviet references.

SUBMITTED: March 24, 1959

Card 2/2

SOV/137-58-10-20698

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 10, p 52 (USSR)

AUTHOR: Katsenelenbogen, P.D., Krochevskiy, V.A., Smirnov, M.N.

TITLE: Complex Utilization of Kola Nepheline Concentrate (Kompleksnoye ispol'zovaniye Kol'skogo nefelinovogo kontsentrata)

PERIODICAL: V sb.: Legkiye metally. Nr 4. Leningrad, 1957, pp 37-43

ABSTRACT: Note is taken of a number of features of production engineering and equipment found in the course of investigations of and development of a procedure at the Volkhov Aluminum Plant. Emphasis is given to the need for preparing the charge on the basis of extraction of aluminate caustics and Ca silicate. Permissible maxima for impurities in the limestone and the nepheline concentrate are established. It is recommended that sintering be done to a dense condition such as clinker. It is desirable to combine grinding and leaching of the sinter at 68-70°C. The concentration of aluminate solutions is 80-90 g Al_2O_3/liter. The grain size of the ground clinker is from +1 to -0.088 mm. The time required for silicon removal is 2-3 hours at 160-170°. It is desirable that carbonization be in 2 stages, the residual Al_2O_3 contents being 4 g/liter in the first

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Complex Utilization of Kola Nepheline Concentrate

stage and 0.1-0.2 g/liter in the second. Equipment is chosen for each stage in the process, and a procedure for the employment thereof is developed. A high-output thickening filter, rendering contact between solids and fluids impossible (to avoid secondary reactions) is designed and perfected.

L.P.

1. Nephelites ores--Processing 2. Nephelite ores--Applications

Card 2/2

L 46833-66 EWT(l)/EWT(m)/EWP(j) IJP(c) WW/GG/RM

ACC NR: AR6013639 SOURCE CODE: UR/0058/65/000/010/D054/D054

AUTHOR: Krochik, A. S.

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B

REF SOURCE: Visnyk L'vivsk'. un-tu. Ser. fiz. L'viv, 1964, 25-29

TITLE: Study of the shapes of self-absorption bands in a phenanthrene crystal

SOURCE: Ref. zh. Fizika, Abs. 10D381

TOPIC TAGS: phenanthrene, phenanthrene single crystal, exciton, phonon interaction, absorption band

TRANSLATION: The absorption of light in a phenanthrene single crystal was investigated in a broad temperature range (4.2-290°K). True shapes of absorption bands were obtained. The temperature dependence of the half-width of the 0-0 transition band, its asymmetry, peak displacement and the shape of the absorption band are studied. The characteristic temperature is determined as 40-50°K. Therefore, changes in the degree of asymmetry and even more so the change in its sign when the temperature is lowered from 20 to 4.2°K, cannot be associated with changes in the exciton-phonon interaction. These changes can be associated with the effect of spatial dispersion and the complex structure of the exciton zone. Apparently this offers a reasonable explanation for the complex shape of the 0-0 transition absorption band at low temperatures.

SUB CODE: 20/ SUBM DATE: none

Card 1/1 blg UDC: 535.33; 535.34; 5480:535

BASOW, N. G. [Basov, N. G.]; KROCHIN, O. N. [Krokhin, O. N.]; POPOW, J. M. [Popov, Yu. M.]

Preparation of states with negative temperature at p-n transitions of degenerated semiconductors. Acta phys Hung 14 no.2 3: 241-243 '62.

1. P. N. Lebedew Institut fur Physik der Akademie der Wissenschaften USSR, Moskay, USSR. Vorgelegt von G. Szigeti [Gyorgy Szigeti]

KROCHMAL, Franciszek; BELTOWSKA, Maria

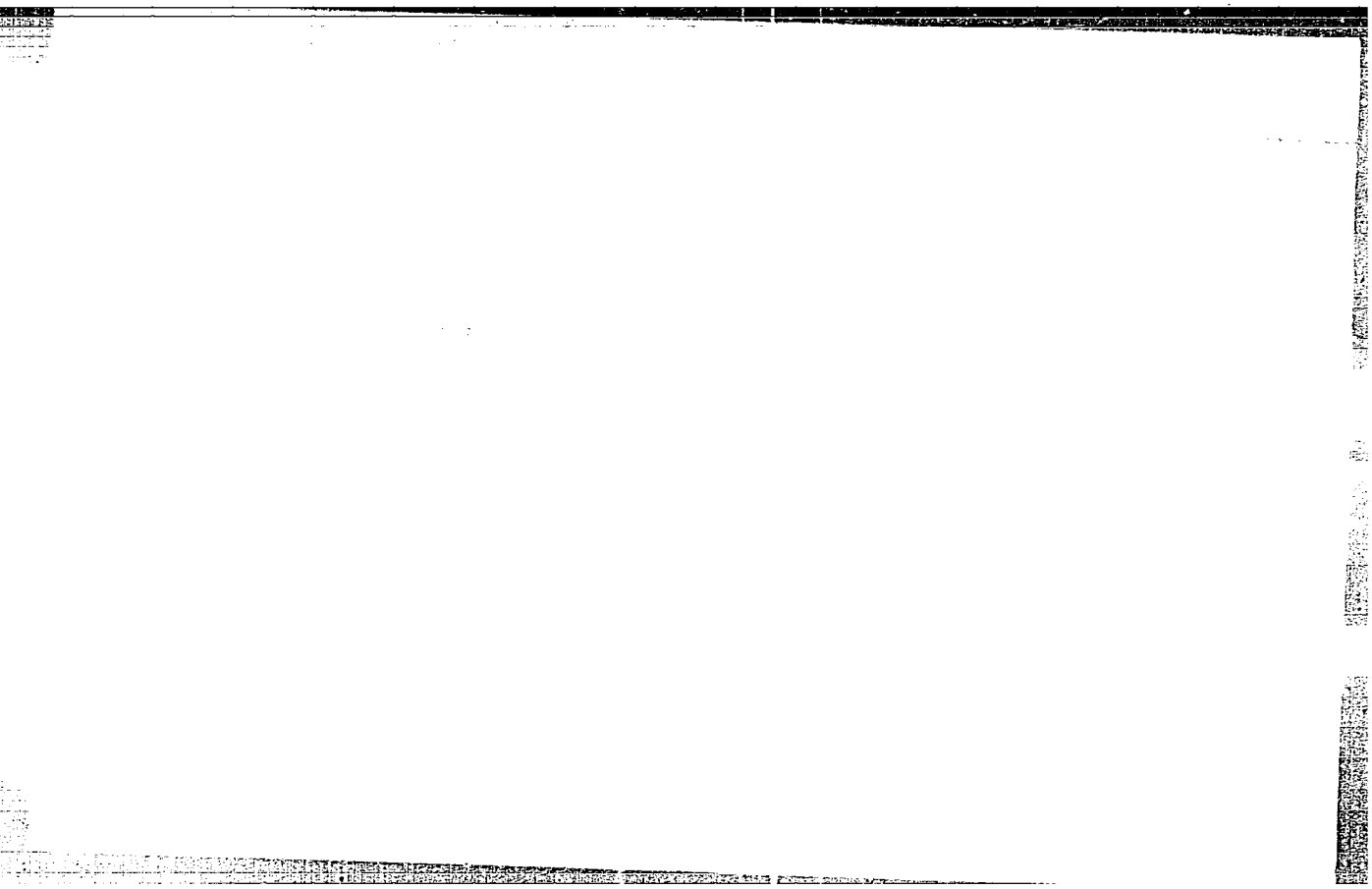
Influence of cations on the behavior of zinc anodes. Mat chemia no. 7:61-69 '63.

1. Katedra i Zaklad Chemii Fizycznej, Uniwersytet im. Adama Mickiewicza, Poznan.

KROCHMAL, Franciszek; STENCEL, Marian

Influence of anions on the anodic behavior of metallic zinc. Mat chemia no.6:34-43 '62.

1. Katedra i Zaklad Chemii Fizycznej, Uniwersytet im. Adama Michiewicza, Poznan.



APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R000826620002-5"

NAPIORKOWSKI, Jan, mgr inz.; KROCHMAL, Wieslaw, mgr inz.; CIESLAK, Albin, inz.

A case of downfall of the driver's cab with the operating crew from a steel frame traveling bridge. Energetyka Pol 15 no.10:316-318 .

KROCHMAL-KARA, Maria

Floristic notes from Lopuchowko forest near Poznan. Biologia Poznan no.5:115-120 '64.

1. Department of Plant Taxonomy and Geography of the A. Mickiewicz University, Poznan.

[redacted] Wiktor; KORN, Helena; KROCHMALSKA, Emilia

Hearing and equilibrium disorders following cranial injuries. Otolaryng. Pol. 16 no.1a:237-248 '62.

1. Z Kliniki Laryngologicznej AM w Bialymstoku Kierownik: doc. dr med. W. Hassmann.

(SKULL wds & inj) (DEAFNESS etiol)
(EQUILIBRIUM)

KROCHMALSKA, Emilia

Labyrinthine manifestations of Barre-Lieou cervical syndrome.
Pol. tyg.lek. 18 no.47:1761-1764 18 N'63.

1. Z Kliniki Otolaryngologicznej AM w Bialymstoku; kierownik: prof.dr.med. W.Hassmann.

S/185/61/006/005/016/019
D274/D303

AUTHORS: Brodin, M.S., and Krochuk, A.S.

TITLE: Fine structure and temperature dependence of CuCl single crystals absorption-spectrum

PERIODICAL: Ukrayins'kyy fizychnyy zhurnal, v. 6, no. 5, 1961, 706 - 709

TEXT: Plane-parallel single-crystals, 5 - 40 μ thick, were prepared; no thinner plate could be obtained by mechanical means. The absorption spectra were obtained at temperatures of 4.2, 20.4, 150 and 290°K on a spectrograph with a dispersion of 4 Å/mm; the reflection spectra were photographed at 20.4°K with a dispersion of 10 Å/mm. A figure shows the curves of the absorption edge for a specimen 25 μ thick, at the four indicated values of the temperature. Two strong absorption-bands were observed, one at T = 4.2°K, $\nu \approx 25834$ cm-1, and the other at T = 20.4°K with a reflection maximum at $\nu = 26435$ cm-1. These bands are apparently exciton bands. They were also observed in polycrystalline films by R. Reiss and

Card 1/3

S. Nikitine (Ref. 3: C.r. Acad. Sci., 250, 2862, 1960), where the presence of weak bands between the above two bands, was observed. The authors were however unable to observe these weak bands. On the other hand, the authors observed two weak and very narrow bands on the longwave side of the band ν = 25834 cm^{-1}. They are best observed at liquid helium temperature, and are broadened on increase of temperature. These bands have two interesting properties: their relative intensity varies from crystal to crystal, so that in one specimen the first band is stronger and in another specimen - the second; in addition, their intensity depends little on thickness of specimen. Another characteristic feature of the absorption bands of CuCl, is the non-monotonic temperature shift of the absorption edge; the authors concluded that the maximum of the strong absorption band ν = 25834 cm^{-1} at T = 4.2°K, is also non-monotonically temperature dependent. The narrow bands, 25642 and 25694 cm^{-1} have a similar temperature shift. The non-monotonic character of the temperature shift is an indication of the complex absorption mechanism and deserves further study. Further, the peculiar features of the narrow bands are related to the inhomogeneity of impurity centers,

Fine structure and temperature ... S/185/61/006/005/016/019
D274/D303

whose field influence the corresponding exciton levels. As the authors did not conduct crystallographic investigations, they were unable to ascertain the relationship between the anisotropic character of the crystals and the peculiarities of the narrow bands. There are 2 figures and 6 references: 3 Soviet-bloc and 3 non-Soviet-bloc. The reference to the English-language publication reads as follows: R. Coelho, Techn. Rep. 143, Mass (USA), October 1960.

ASSOCIATION: Instytut fizyky AN URSR m. Kyyiv (Institute of Physics AS UkrSSR, Kyyiv)

SUBMITTED: June 10, 1961

Card 3/3

BRODIN, M.S.; KROCHUK, A.S.

Anomalous dependence of absorption intensity on thickness in CuCl single crystals. Fiz. tver. tela 5 no.12:3609-3611 D '63. (MIRA 17:2)

1. Institut fiziki AN SSSR, Kiyev.

BRODIN, M.S.; KROCHUK, A.S.

Optical properties of a phenanthrene single crystal in the region of main exciton absorption bands. Ukr.fiz.zhur. 7 no.11:1205-1213 N '62. (MIRA 15:12)
(Phenanthrene crystals--Optical properties) (Excitons) (Dispersion)

45077

24.3150

S/051/63/014/001/014/031
E039/E120

AUTHORS: Brodin, M.S., and Krochuk, A.S.

TITLE: Peculiarities of the optical absorption of CuCl single crystals

PERIODICAL: Optika i spektroskopiya, v.14, no.1, 1963, 88-93

TEXT: Samples of CuCl, which belongs to the cubic system and has T_d^2 symmetry, were prepared in the form of thin parallel plates (10 μ or more thickness) from large single crystals grown at the Institut Kristallografii AN SSSR (Institute of Crystallography, AS USSR). These crystals were uniform and colourless with a mirror finish on their surfaces. They were mounted either in paper holders or on quartz plates; the method of fixing did not influence their spectra. Photographic recording was used on a diffraction grating spectrograph with a dispersion of 4 Å/mm. A Xenon lamp was used as a light source; this provided a continuous spectrum in the region investigated. Absorption curves were obtained at temperatures of 290, 150, 77, 20.4 and 4.2 °K. Reflection spectra were obtained using normal incidence at 290, 150, 77 and 20.4 °K. In the latter case wedge-

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shaped samples were used to avoid light reflected from the back surface entering the spectrograph. At low temperatures strong bands were observed which are ascribed to exciton excitation. The temperature displacement of the edge of the spectrum is not monotonic, hence confirming the complex character of absorption. Near the intensity maximum 25 830 cm^{-1} at 4.2 °K three narrow weak bands were observed at 25 642, 25 694 and 25 706 cm^{-1} which can be grouped in a hydrogen-like series, described by the relation

$$\nu_n = 25\,710 - \frac{68}{n^2}\ cm^{-1}$$

where n = 1, 2 and 3.
There are 4 figures.

SUBMITTED: December 20, 1961

Card 2/2

BACZKOWSKI, Tadeusz, KROCIN, Andrzej

Contraction of chromnickel steel alloy in the light of our own experiments. Czas. stomat. 19 no.1:59-62 Ja '66

1. Z Kliniki Stomatologicznej AM w Warszawie (Kierownik: prof. dr. J. Galasinska-Landsbergerowa) i z Panstwowej Medycznej Szkoly Technikow Dentystycznych w Warszawie (Kierownik: lek. med. lek. dent. R. Tracz).

KROCKEL, O.

Distr: 4E2d(b) 2 cys

New thermocouple for high-temperature measurements. Ottomar Krockel (Phys. Lab., VEB Ceramic Works, Neuhaus-Schiericmitz, Czech.). *Silikat. Tech.* 11, 108-11 (1960).—The new-type $MoSi_2$-Mo couple is stable, even in an oxidizing atm. The Mo wire is protected by a thin layer of $MoSi_2$ applied by treatment with $SiCl_4$ in a H atm. at 1000°. The thermocouple is much superior to $MoSi_2$-Pt (Arvin, *CA* 47, 10935g). The brittle $MoSi_2$ cannot be formed into a wire; it is used as a tubular body on which the Mo wire is welded. The whole element is protected by a ZrO_2 ceramic tube, and sintered at 1700-820° in a furnace. Sintered Al_2O_3 is not suitable as an insulating material because it forms a low-melting eutectic with the SiO_2 in the protective layers. The e.m.f. of the element is $E = 1.6T + 1.6 \times 10^{-3}T^2 - 5.2 \times 10^{-7}T^3$ (T is temp. in °C.); aging ceases after some hrs. of service. The couple is stable up to 1700° in oxidizing and 1850° in reducing atms., and has a lifetime superior to that of Pt-Rh-18 couples.

W. Eitel

KROKHA, P.M.; SADKOVSKIY, V.A.; CHENDYLOVA, V.A.; GAL'PERIN, I.S., inzh.

Eliminate the shortcomings in planning. Put' i put. khoz. 9 no.11:32 '65. (MIRA 18:11)

1. Nachal'nik putevoy mashinnoy stantsii No.124, stantsiya Chernovtsy, L'vovskoy dorogi (for Krokha). 2. Glavnyy inzh. putevoy mashinnoy stantsii, stantsiya Chernovtsy, L'vovskoy dorogi (for Sadkovskiy). 3. Glavnyy bukhgalter, stantsiya Chernovtsy, L'vovskoy dorogi (for Chendylova). 4. Stantsiya Chernovtsy, L'vovskoy dorogi (for Gal'perin).

KROCZAK J.

KROCZAK J. Miejskiego Szpit. dla Dzieci w Zabrzu. *Leczenie gruzliczego zapalenia opon mozgowo-rdzeniowych u dzieci. Treatment of tuberculosis meningitis in children POLSK.TYG.LEK.1953, 8/33 (1137-1145) Graphs 2 Tables 6 and 8/34 (1183-1186) Tables 2

The results of treatment in the years 1948-1950 are reported. 280 children were treated. Of these 117 died; 46 were discharged without any improvement; permanent recovery (they were followed up for 1-2 yr.) was obtained in 65 cases., i.e. in 30%. The worst results were in children under 3 yr. of age and in those who were brought to the hospital in late stages of the disease. The treatment was based on streptomycin administered intramuscularly (20-30 mg./kg.) and intrathecally (1-5 mg./kg.) The patients were also given PAS or nitrogranulogen. In consideration of the frequent failure of the methods of treatment most commonly used, the author emphasizes the necessity of protecting young children against the infection.

Bogdanowicz - Warsaw (XX,7,8,15)

SO: EXCERPTA MEDICA, Section 8, Vol. 7, No.5. May 1954

CHWALIBOGOWSKI, A.; KROCZAK, J.; SPETT, J.; METZGER, M.; ROMANSKA, K.; RUDNICKA, I.; SROCZYNSKA, M.

Role of Salmonella and Shigella in etiology of diarrheas in in infants and small children. Pediat. polska 31 no.2:139-154 Feb 56.

1. Z Kliniki Chorob Dziecicych Sl. A.M. w Zabrzu. Kierownik: prof. dr. med. A. Chwalibogowski i z Zakladu Mikrobiologii Sl. A.M. w Zabrzu Kierownik: prof. dr. med. S. Slopek. Zabrze, ul. 3 Maja 63, Klinika Chorob Dzieci A.M.

(SALMONELLA INFECTIONS, in infant and child, diarrhea (Pol))
(SHIGELLA, infections, diarrhea in inf. & child. (Pol))
(DIARRHEA, in infant and child, Salmonella & Shigella infect. (Pol))

1984. Modern method of telephone battery charging. KROCZEK, J. *Slaboproud. Obz.*, 9, 174-6 (Oct., 1948) In Czech.—The general principles for determining the size of a battery charging rectifier are pointed out discriminating especially between the requirements of 2-battery operation and single-battery heavy-duty service. A rectifier for heavy-duty batteries must have a discontinuous characteristic (l.c.-h.v.) for the charged battery and (h.c.-l.v.) for the discharged battery. The rectifier described is provided with such a characteristic which is obtained by means of a choke giving the required sudden steep jump. The choke is so designed that it suddenly changes from the non-premagnetized into the premagnetized state, the region between being unstable. The effect is achieved by using a magnetizing coil working on the transductor principle. R. V. K.

APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R000826620002-5"

KROCZEK, J., inz., dr.; VINOPAL, K.; HRUBY, V.

Selenium rectifiers in power industries. Energetika Cz 7 no.2:77-81 F '57.

KROCZEK, J.

"The transistor as a controlling, connecting, and switching element in power-current engineering."

Elektrotechnicky Obzor. Praha, Czechoslovakia. Vol. 47, no. 10, Oct. 1958.

Monthly list of East European Accessions (EEAI), IC, Vol. 8, No. 6, Jun 59, Unclas

KROCZEK, J.

TECHNOLOGY

ELEKTROTECHNICKY. OBZOR.

KROCZEK, J. New semiconductor rectifying systems. p. 613.

Vol. 47, no. 12, Dec. 1958.

Monthly List of East European Accessions (EEAI), LC, Vol. 8, no. 5
May 1959, Unclass.

KROCZEK, J.: [redacted]: [redacted]

TECHNOLOGY

PERIODICAL: ADTA TECHNICA VOL. 4, no 2, 1959

KODES, J.: KROCZEK, J.: SLAVIK, J. Optical control of charges in selenium rectifiers. In German, p. 132

Monthly List of East European Accessions (EEAI), LC, Vol. 8, no. 5
May 1959, Unclass.

KROCZEK.

"Technology of monocrystals."

Elektrotechnicky Obzor. Praha, Czechoslovakia. Vol. 48, no. 2, Feb. 1959.

Monthly list of East European Accessions (EEAI), LC, Vol. 8, No. 6, Jun 59, Uncles

KROCZEK, J.

How selenium rectifiers can compete with germanium and silicon rectifiers. p. 507.

ELEKTROTECHNICKY OBZOR. (Ministerstvo tezkeho strojirenstvi a Ceskoslovenske vedecka technicka spolecnost pro elektrotechniku pri Ceskoslovenske akademii ved)
Praha, Czechoslovakia, Vol. 48, No. 10, Oct. 1959.

Monthly List of East European Accession, (EEAI), LC, Vol. 8, No. 12, Dec. 1959, Uncl.

KROCZEK, J.

83992
Z/017/60/049/010/001/002
E192/E482

9,4360

AUTHOR: Kroczek Julius, Inž. dr. RNDr.

TITLE: Ageing of Selenium Rectifiers with an Artificial Barrier Layer

PERIODICAL: Elektrotechnický obzor, 1960, Vol.49, No.10, pp 516-520

TEXT: The inverse breakdown or operating voltage of a selenium rectifier can be increased by depositing an artificial barrier layer on to a selenium plate. Originally such a layer was produced by sulphurizing, but recently a new technology was introduced; the inverse voltage of selenium elements is increased by dipping the elements in an alcohol or acetone solution of potassium manganate. In the following an attempt is made to explain the influence of such processing on the life of a selenium rectifying element. It is assumed that during the passage of current through a selenium element, electric charges are produced by the perturbation regions situated in the selenium layer. The conductivity of the element is a property of its structure. It is known that the conductivity is dependent on the concentration of impurities and is approximately proportionate to it. Further, it is known that as long as the structure remains unchanged, the conductivity is constant. On the

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Ageing of Selenium Rectifiers with an Artificial Barrier Layer

other hand, a change in conductivity is due to a change in structure. Consequently, the changes in conductivity are due to the changes in the concentration of active perturbation regions. This change in the concentration in a selenium layer is due to diffusion. The changes caused by continuous operation of a selenium element are therefore due to diffusion phenomena. The diffusion effect is described by

$$\frac{\partial c}{\partial t} = D\left(\frac{\partial^2 c}{\partial x^2} + \frac{\partial^2 c}{\partial y^2} + \frac{\partial^2 c}{\partial z^2}\right) \qquad (1)$$

where c is the concentration and D is the diffusion coefficient. If the diffusion is unidimensional in the direction of x, Eq.(1) can be written as

$$\frac{\partial f(x,t)}{\partial t} = D\,\frac{\partial^2 f(x,t)}{\partial x^2} \qquad (2)$$

where $f(x,t)$ is the distribution function for the particles

Ageing of Selenium Rectifiers with an Artificial Barrier Layer

in space and time. The solution of Eq.(2) is in the form

$$f(x,t) = \frac{N}{2\sqrt{\pi Dt}} e^{-\frac{x^2}{4Dt}} \qquad (3)$$

The total number of the diffused particles can therefore be expressed by Eq.(5). By introducing a new variable, Eq.(5) can be written as Eq.(5a), which is in the form of the Gaussian integral. The above formulas can be used to study the ageing of selenium elements. Fig.2 shows the dependence of the differential resistance β of an element on the thickness of an artificial barrier layer. If the curve in Fig.2 is shifted downwards, which corresponds to a reduction in β, a new curve β' is obtained. From this it is possible to determine the thickness of the insulation layer which increases due to the diffusion of potassium manganate. On the other hand, if the static current-voltage characteristics of a selenium element are known when the element was new and after it was shelf-stored for a long period of time,

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Ageing of Selenium Rectifiers with an Artificial Barrier Layer

it is possible to determine the thickness of the inverse conducting layer by determining the change in β'. Fig.6 shows the characteristics of a 40 x 40 mm^2 selenium element. The initial characteristics (Curve a) and the characteristic after half-year storage, indicate that β' increased from 71.2 to 79 Ω/cm^2. The barrier layer thus increased from 8.5 µm to 9 µm. From this it can be found that the diffusion coefficient is $D = 2 \times 10^{-18}$ cm^2/s. By using this diffusion coefficient, it is possible to determine further ageing of the selenium element. There are 9 references: 3 English and 6 German. There are 6 figures.

ASSOCIATION: ČSAV (Czechoslovak Academy of Sciences)

SUBMITTED: May 4, 1960

Card 4/4

Z/017/60/049/011/010/013
E073/E535

AUTHOR: Kroczek, Julius, Engineer Doctor, Doctor of Natural Sciences

TITLE: Physical-Technical Analysis of Single Crystal Semiconductor Rectifiers

PERIODICAL: Elektrotechnický obzor, 1960, Vol.49,No.11,pp.588-596

TEXT: The aim of the paper is to give general information to readers who are not acquainted with the physical and technical fundamentals of single crystal semiconductor rectifiers. The problem is introduced by a typical description of the p-n junction. This is followed by an analysis of the electric forces in the microstructure of matter and their dependence on the properties of the material from the point of view of the periodic system. The polar nature of electrical conductivity of pure and contaminated single crystals is explained and dissociation and recombination up to the quantitative determination of the current are analysed. The quantum theory and its extension to band models of semiconductors using the Fermi-Dirac function and the Fermi level, is applied for elucidating the

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Physical-Technical Analysis of Single Crystal Semiconductor Rectifiers

phenomena involved. There are 13 figures, 1 table and 9 references: 5 Czech and 4 German.

ASSOCIATION: ČSAV

SUBMITTED: July 20, 1960

Card 2/2

SANDEROVA, Vera, Prom.Phys., Asistent; KROCZEK, Julius, Dr. Ing.RNDr; SLAVIK, Josef B., Ing.RNDr, Prof.

Reversible and irreversible changes of structure and conductance during the heat treatment of selenium. Acta techn Cz 6 no.2:117-123 '61. (EEAI 10:6)

1. Direktor des Physik Instituts der Technischen Hochschule, Praha (for Slavik). 2. Institut der Technischen Hochschule, Praha (for Sanderova). 3. Tschechoslowakische Akademie der Wissenschaften, Institut fur Elektrotechnik (for Kroczek)
(Selenium)

KROCZEK, Julius, Dr.Ing., RNDr.

Problem of aging of selenium rectifier discs with an artificial barrier level. Acta techn Cz 6 no.5:474-483 '61.

1. Ceskoslovenska akademie ved, Ustav pro elektrotechniku, Praha 1, Vaclavske namesti 55.

(Electric current rectifiers)

Z/039/62/023/007/001/005
D409/D301

9.2150

AUTHORS: Kraczek, Julius, Doctor, Engineer, and Slavik, Josef B., Professor, Doctor of Sciences, Engineer

TITLE: Aging of semiconductor, namely selenium rectifiers

PERIODICAL: Slaboproudý obzor, v. 23, no. 7, 1962, 369 - 373

TEXT: Since the service life of selenium rectifiers is considerably shortened by aging, the causes of this phenomenon are investigated with the aid of characteristics changes and provisions listed which limit the aging effect and make selenium rectifiers a dependable electrical component. The physical reason for aging, resulting in an increased resistance in a forward direction, is a structural change in the selenium layer, caused by a diffusion process and accelerated by elevated operating temperatures. In this process, activators diffuse from the selenium layer and deactivators (atmospheric oxygen and chemically active elements used in silicon disc manufacture) diffuse into the selenium layer. Classical diffusion laws can therefore

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Aging of semiconductor, ...

be used also for quantitative determination of the semiconductor aging process. To limit the aging effect at least in a forward direction, the following technology for selenium-disc preparation is recommended: To increase the stability of the selenium layer, special attention must be paid to the transformation from one into another crystal modification. For both pressed-on and vapor-coated selenium layers, the transformation should be carried out at 140 - 218 °C and the completion of the recrystallization process should be checked by direct electrical conductivity measuring or by a photometer using surface reflection. Only such raw materials should be used which have a low diffusion coefficient and low chemical affinity to the activator, or intermediate layers should be applied to prevent detrimental effects on activators. Oxidation should be avoided during production as much as possible, and discs of air-cooled rectifiers should be protected by laquer coatings. There are 3 figures.

ASSOCIATION: Ústav pro elektrotechniku ČSAV, Praha (Electrical Engineering Institute, Czechoslovak AS, Prague) (J. Kroczek); Fyzikální ústav elektrotechnické fakulty ČVUT, Praha

Aging of semiconductor, ... Z/039/62/023/007/001/005
D409/D301

(Physical Institute of the Electrical Engineering Department, Czech. Institute of Technology, Prague)
(J.B. Slavik)

SUBMITTED: March 15, 1962

Card 3/3

32729
Z/017/62/051/002/001/004
D291/D301

9,2150 (1020,1159,1331)

AUTHORS: Kroczek, Julius, Engineer, Doctor of Natural Sciences, and Kodeš, Jiří, Engineer

TITLE: Aging of silicon rectifiers

PERIODICAL: Elektrotechnický obzor, v. 51, no. 2, 1962, 64-67

TEXT: The article points out the importance of the stability of the silicon p-n junction and deals with tests which were conducted to prevent a drop in the blocking effect, resulting in a gradual shift of the blocking characteristic and endangering the p-n junction. Silicon diodes with medium quality parameters were loaded in a thermostat at an ambient temperature of 100°C by a d.c. blocking voltage of 100 V. The blocking characteristics were impaired during a period of 40C hrs, whereupon they again improved. The throughflow loss invariably remained 1.3 V. The aging was assumed to have been caused by a mutual diffusion of the elements in the p-n junction or those elements surrounding it. These tests have shown that silicon diodes are not ideally stable, however,

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Aging of silicon rectifiers

and that the barrier diffusion in the p-n junction is very small without having any appreciable adverse effect upon their operation and economic suitability. The author points out that the residual gases and vapors between the envelope and the surface of the wafer at first cause an increase in the blocking currents, however, that these blocking currents later stabilize. In conclusion it is recommended that before leaving production for operational use, semiconductor diodes should be artificially aged by being subjected to high temperatures which would not only reveal hidden defects but also stabilize the technical parameters. The author thanks Professor, Engineer, Doctor J. Slavík for making available the facilities of the Physical Institute of the ČVUT, and to Engineer M. Kubát. There are 1 figure and 1 Soviet-bloc reference.

ASSOCIATION: ČVUT (Kodeš); ČSAV (Kroczek)

SUBMITTED: November 9, 1961

Card 2/2

Z/017/62/051/007/001/002
D409/D301

AUTHOR: Kroczek, Julius, Engineer, Doctor of Natural Sciences

TITLE: Controlled semiconducting elements including intermetallic alloys and their application in heavy-current engineering

PERIODICAL: Elektrotechnický obzor, v. 51, no. 7, 1962, 313-319

TEXT: This article, predominantly based on Western sources, examines the applicability of semiconducting elements for heavy-current control, describes in detail the function of the four-layer transistor, and lists the development of tecnetrons, field transistors, and semiconducting $A^{III}B^{V}$-type intermetallic compounds for continuous non-thyratron control. Since the regular barrier-type transistor has only a limited applicability in heavy-current control due to its high losses, other transistor types have been developed for this special purpose. Most widely used is the four-layer diode

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D409/D301

Controlled semiconducting ...

(trinistor) which actually is a controlled rectifier or 'silicon' thyratron, only that it is more efficient, reliable, and smaller than the gas-tube thyratron or the controlled mercury rectifier. Trinistors which operate in a temperature range of -50 to +50°C, are successfully used to replace controlled mercury rectifiers up to 400 V d-c, and mercury thyratrons in d-c control. However, special circuits also permit the use of trinistors to regulate d-c sources, eventually for d-c to a-c conversion. Efforts to eliminate the disadvantages of thyratron control systems led to the development of the tecnetron, the field transistor, and intermetallic compounds where the conductivity of the semiconducting element is controlled by an electric or magnetic field respectively. Most suitable for magnetic conductivity control (Hall effect) are intermetallic compounds with great movability of charge carriers, namely InSb and InAs. These semiconducting intermetallic compounds can be used for continuous d-c regulation, d-c to a-c conversion, etc; however, they require a special purification and recrystallization technology. There are 10 figures. The most recent English language reference is: F. Herman, M. Glicksman, R.H. Parmenter: Semiconductor Alloys. Pro-

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Controlled semiconducting ... 2/017/62/051/007/001/002
D409/D301

gress in Semiconductors, v. 2, pp 1-33, London 1957.

SUBMITTED: March 12, 1962

Card 3/3

KROCZEK, J., dr.

Experimental tests of mechanical strength of transformers in short circuits. El tech obzor 51 no.7:359-361 Jl '62.

1. Ceskoslovenska akademie ved.

KROCZEK, dr.

Characteristics of the controllable silicon rectifiers. El tech obzor 51 no.11:598-599 N '62.

1. Ceskoslovenska akademie ved.

KROCZEK, dr.

New trends in transistor development. El tech obzor 51 no.8:416-417 Ag '62.

1. Ceskoslovenska akademie ved.

KROCZEK, dr.

A synchronous motor with outside speed control. El tech obzor 51 no.8:425 Ag '62.

1. Ceskoslovenska akademie ved.

KROCZEK, dr.

The power thyristor made by the Asea-Vasteras firm. El tech obzor 52 no.2:101 F '63.

1. Ceskoslovenska akademie ved.

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1. Assistent am Physikalischen Institut, Technische Hochschule, Praha 2, Karlovo namesti 13 (for Kodes). 2. Tschechoslowakische Akademie der Wissenschaften, Praha 1, Vaclavske namesti 55 (for Kroczek). 3. Direktor des Physikalischen Institutes, Technische Hochschule, Praha 2, Karlovo namesti 13 (for Slavik).

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1. Ceskoslovenska akademie ved (for Kroczek). 2. Ustav pro polovodicovou techniku, Berlin-Teltow, German Democratic Republik (for Kuhnert). 3. Laborator pro polovodice vyzkumneho ustavu pro elektroprumysl, Budapest, Hungary (for Molnar). 4. Institut elektrotechniky, Varsava, Poland (for Wdowiak).

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Effect of different concentrations of bromine activator on the first heat change in selenium layers of selenium rectifiers. El tech obzor 52 no.11: 584-587 N'63.

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POLAND / Soil Science. Mineral Fertilizers. J-4

Abs Jour : Ref. Zhur - Biologiya, No 17, 1958, No. 77437

Author : Kurylowicz, Boleslaw; Gasiorowski, Stanislaw; Kroczynski, Josef

Inst : Agrochemistry Institute

Titlo : Results of Investigations Evaluating Magnesium Thermophosphate

Orig Pub : Postepy nauk. roln., 1957, 4, No 1, 45-57

Abstract : The Department of Sulfuric Acid and Phosphorus Fertilizers of the Agrochemistry Institute investigated in vegetative and field tests the effectiveness of magnesium thermophosphate obtained by the fusion of 25 parts of apatite, 75 parts of local phosphorites and 70 parts of serpentine at 1350-1500°. The thermophosphate contained 14% of common P_2O_5 and 11.8% of a citrate-soluble, SiO_2 - 34.1%,

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POLAND / Soil Science. Mineral Fertilizers. J-4

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R_2O_3 - 9.4%, CaO - 31.5%, MgO - 9.1%, F - 0.2%. The fineness of the grist is considered sufficient when 80% of the material passes through a sieve having a 1600 per cm^2 mesh. In the summary, the Department also included tests of the nutrition of plants and fertilizer of the Secondary Agricultural School in Warsaw and tests conducted in Czechoslovakia. On soils of acid and poor P_2O_5, thermophosphate affected a better P_2O_5, which is predominately on the more cultivated soils. -- Z. I. Zhurbitskiy.

Card 2/2

SUREWICZ, Wlodzimierz, doc. dr; DABROWSKI, Jozef, mgr inz. KROCZYNSKI, Slawomir, mgr inz.

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